

CLAIMS

What is claimed is:

1. A self energizing tube connector for engaging a pressurizable part comprising:

5 a. a tube capable of sustaining pressures up to 50,000 psi without deforming comprising an upstream tube end and a downstream tube end;

b. a ferrule comprising:

i. a front ferrule;

ii. a rear ferrule;

10 iii. a lifting component, wherein the lifting component slidably engages the front ferrule to cause a upstream seal to form between the pressurizable part and the tube; and

iv. a downstream seal between the front ferrule and the tube;

15 c. a coupling nut for sliding over the tube and disposed downstream of the rear ferrule for engaging the pressurizable part, wherein the coupling nut is adapted to tighten against the rear ferrule, front ferrule, and lifting mechanism to compress the rear ferrule, front ferrule, and lifting mechanism against the pressurizable part and the tube.

2. The tube connector of claim 1, wherein the tube comprises an outer diameter ranging between about 1/8 inches to about 12 inches.

20 3. The tube connector of claim 1, wherein the tube comprises an outer diameter ranging

between about 1/8 inches to about 1 inch diameter.

4. The tube connector of claim 1, wherein the front ferrule, the rear ferrule, and the lifting component comprise a deformable material that deforms upon compression with the coupling nut.
- 5 5. The tube connector of claim 4, wherein the deformable material is a metal or plastic.
6. The tube connector of claim 1, wherein the tube is a metal tube or a plastic tube.
7. The tube connector of claim 1, wherein the pressure ranges between 1 atm to 25,000 psi.
8. The tube connector of claim 1, wherein the coupling nut comprises a threaded engagement with the pressurizable part.
- 10 9. The tube connector of claim 1, wherein the pressurizable part is a down hole safety valve, a plurality of chemical injection assemblies, a plurality of tubing hangers, a plurality of blow out preventors, a plurality of subsea Christmas trees, or a plurality of packers
10. The tube connector of claim 1, wherein the lifting component is a ring comprising an upstream edge and a downstream edge, wherein the upstream edge has a diameter larger
15 than the downstream edge.
11. The tube connector of claim 10, wherein the lifting component further comprises a groove disposed adjacent the upstream edge to prevent sealing at the upstream edge of the lifting component.
12. The tube connector of claim 1, wherein the front ferrule comprises a conical shape for
20 engaging the pressurizable part.

13. The tube connector of claim 1, wherein the coupling nut is a jam nut.
14. A method for using a tubular connector with a pressurizable part comprising the steps of:
- a. sliding a coupling nut over a tube;
 - b. sliding a rear ferrule over the tube;
 - 5 c. sliding a front ferrule over the tube;
 - d. sliding a lifting component over the tube forming a ferrule assembly over the tube;
 - e. inserting the tube into a pressurizable part; and
 - f. applying pressure with a coupling nut to the ferrule assembly forming an upstream seal and a downstream seal between the tube and the pressurizable part.
- 10 15. The method of claim 14, wherein the step of sliding a coupling nut over the tube uses a jam nut over the tube.